PATENT
Attorney Docket No. **FORS-06612**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Mary Ann D. Brow *et al.*
Serial No.:
Filed:
Entitled: **Rapid Detection And Identification Of Pathogens**

Group No.: 1636
Examiner: W. Sandals

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

CERTIFICATION UNDER 37 C.F.R. § 1.10

I hereby certify that this New Application Transmittal and the documents referred to as enclosed therein are being deposited with the U.S. Postal Service on this date **August 28, 2001** in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number **EL 790816730 US** addressed to: **Box Patent Application**, Assistant Commissioner For Patents, Washington, D.C. 20231.

Susan M. McClintock
Susan M. McClintock

Sir/Madam:

The following communication is responsive to the Restriction Requirement in the Office Action mailed August 15, 2001 for patent application serial number 09/655,378. In the restriction requirement, the Examiner restricted the claims into four groups: Group I, Claims 45-70; Group II, Claims 71-94; Group III, Claims 95-108; and Group IV, Claims 109-123. Applicants elected Group I for prosecution with patent application serial number 09/655,378. The present Divisional Application is directed to the claims in Group II (*i.e.*, Claims 71-94).

IN THE TITLE OF THE INVENTION

Please substitute the title **"DETECTION OF TARGET SEQUENCES BY CLEAVAGE OF NON-TARGET NUCLEIC ACIDS"** for the currently pending title.

IN THE SPECIFICATION

Please add the following paragraph after the Title of the Invention, but before the Field of the Invention.

This application is a Divisional application of co-pending application U.S. Patent Appln. Ser. No. 09/655,378, filed September 5, 2000, which is a Continuation of co-pending application U.S. Patent Appln. Ser. No. 08/520,946, filed January 15, 1998, which is a Continuing Patent Application of U.S. Patent Appln. Ser. No. 08/520,946, filed August 30, 1995, which is a Continuation-in-Part application of U.S. Patent Appln. Ser. No. 08/484,956, filed June 7, 1995, now U.S. Patent No. 5,843,654, issued December 1, 1998, which is a Continuation-in-Part application of U.S. Patent Appln. Ser. No. 08/402,601, filed March 9, 1995, now abandoned and the Continuation U.S. Patent Appln. Ser. No. 08/802,233, filed February 19, 1997, now U.S. Patent No. 5,888,780, issued March 30, 1997, which is a Continuation-In-Part Application of Application Serial No. 08/337,164, filed November 9, 1994 and the Continuation U.S. Patent Appln. Ser. No. 08/789,079, filed February 6, 1997, now U.S. Patent No. 5,719,028, issued February 17, 1998, which is a Continuation-In-Part Application of Application Serial No. 08/254,359, filed June 6, 1994, now U.S. Patent No. 5,614,402, issued March 25, 1997, which is a Continuation-In-Part Application of Application Serial No. 08/073,384, filed June 4, 1993, now U.S. Patent No. 5,541,311, issued June 30, 1996, which is a Continuation-In-Part Application of Application Serial No. 07/986,330, filed December 7, 1992, now abandoned.

IN THE CLAIMS

Please cancel Claim 45-70 and Claims 95-123.

REMARKS

Claims 45-70 and 95-123 are cancelled as they are being pursued in separate applications. A copy of the pending claims, as amended, is attached for the Examiner's convenience. Should the Examiner believe that a telephone interview would aid in the prosecution of this application, Applicants encourage the Examiner to call the undersigned collect at (608) 218-6900.

Dated: August 28, 2001

David A. Casimir
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

At page 1, following the Title of the Invention, please insert:

--This application is a Divisional application of co-pending application U.S. Patent Appln. Ser. No. 09/655,378, filed September 5, 2000, which is a Continuation of co-pending application U.S. Patent Appln. Ser. No. 08/520,946, filed January 15, 1998, which is a Continuing Patent Application of U.S. Patent Appln. Ser. No. 08/520,946, filed August 30, 1995, which is a Continuation-in-Part application of U.S. Patent Appln. Ser. No. 08/484,956, filed June 7, 1995, now U.S. Patent No. 5,843,654, issued December 1, 1998, which is a Continuation-in-Part application of U.S. Patent Appln. Ser. No. 08/402,601, filed March 9, 1995, now abandoned and the Continuation U.S. Patent Appln. Ser. No. 08/802,233, filed February 19, 1997, now U.S. Patent No. 5,888,780, issued March 30, 1997, which is a Continuation-In-Part Application of Application Serial No. 08/337,164, filed November 9, 1994 and the Continuation U.S. Patent Appln. Ser. No. 08/789,079, filed February 6, 1997, now U.S. Patent No. 5,719,028, issued February 17, 1998, which is a Continuation-In-Part Application of Application Serial No. 08/254,359, filed June 6, 1994, now U.S. Patent No. 5,614,402, issued March 25, 1997, which is a Continuation-In-Part Application of Application Serial No. 08/073,384, filed June 4, 1993, now U.S. Patent No. 5,541,311, issued June 30, 1996, which is a Continuation-In-Part Application of Application Serial No. 07/986,330, filed December 7, 1992, now abandoned.--

PENDING CLAIMS

71. A method of detecting a nucleic acid, comprising:

a) providing:

i) a cleavage means;

ii) a target nucleic acid, said target nucleic acid comprising a first region and a second region, said second region downstream of said first region;

iii) a first oligonucleotide comprising a 3' portion and a 5' portion;

iv) a second oligonucleotide; and

v) a third oligonucleotide;

b) mixing said cleavage means, said target nucleic acid, said first oligonucleotide, and said second oligonucleotide under conditions such that at least said 3' portion of said first oligonucleotide is hybridized to said first region of said target nucleic acid and wherein at least a portion of said second oligonucleotide is hybridized to said second region of said target nucleic acid to form a first complex, and wherein said cleavage of said first complex by said cleavage means liberates said 5' portion of said first oligonucleotide as a first cleavage product;

c) reacting said first cleavage product with said third oligonucleotide and said cleavage means such that at least a portion of said first cleavage product is hybridized to said third oligonucleotide to form a second complex, wherein cleavage of said second complex generates a second cleavage product; and

d) detecting the cleavage of said second complex.

72. The method of Claim 71, wherein said detecting the cleavage of said second complex comprises detecting said second cleavage product.

73. The method of Claim 71, wherein said conditions comprise isothermal conditions.

74. The method of Claim 71, wherein said detecting the cleavage of said second complex comprises detection of fluorescence.

75. The method of Claim 71, wherein said detecting the cleavage of said second complex comprises detection of mass.

76. The method of Claim 71, wherein said second complex comprises a fluorophore having quenched emission, and wherein said detecting the cleavage of said second complex comprises detection of an increase in fluorescence intensity.

77. The method of Claim 71, wherein said detecting the cleavage of said second complex comprises detection selected from the group consisting of detection of radioactivity, luminescence, dye intercalation, fluorescence polarization, staining, or color.

78. The method of Claim 71, wherein said first oligonucleotide is attached to a solid support.

79. The method of Claim 71, wherein said second oligonucleotide is attached to a solid support.

80. The method of Claim 71, wherein said third oligonucleotide is attached to a solid support.

81. The method of Claim 71, wherein said cleavage means comprises an enzyme.

82. The method of Claim 81, wherein said enzyme comprises a DNA polymerase.

83. The method of Claim 82, wherein said DNA polymerase comprises a thermostable DNA polymerase.

84. The method of Claim 83, wherein said thermostable DNA polymerase is derived from an organism from genus Thermus.

85. The method of Claim 81, wherein said enzyme comprises a 5' nuclease.

86. The method of Claim 81, wherein said enzyme comprises a thermostable 5' nuclease derived from a thermostable DNA polymerase modified to have reduced synthetic activity.

87. The method of Claim 71, wherein said first and said second regions of said target nucleic acid are adjacent to each other.

88. The method of Claim 71, wherein a portion of said second oligonucleotide that is hybridized to said target nucleic acid comprises a 3' terminus.

89. The method of Claim 71, wherein said third oligonucleotide comprises a hairpin structure that comprises a duplex region adjacent to a single-stranded 3' arm.

90. The method of Claim 89, wherein said portion said third oligonucleotide hybridized to said portion of said first cleavage product comprises at least a region of said single-stranded 3' arm of said hairpin structure.

91. The method of Claim 90, wherein said region of said single-stranded 3' arm is adjacent to said duplex region of said hairpin structure.

92. The method of Claim 71, wherein a portion of said first cleavage product that is hybridized to said third oligonucleotide comprises a 3' terminus.

93. The method of Claim 71, wherein said cleavage of said second complex cleaves said third oligonucleotide.

94. The method of Claim 93, wherein said cleavage of said third oligonucleotide is within said duplex region.